

Unit 10

Day 3


Rational Inequalities

Section 2.7 of textbook

$$1) \quad \frac{x-2}{x+3} \geq 2$$

$$\frac{x-2}{x+3} - 2 \geq 0$$

$$\frac{x-2}{x+3} + \frac{2x+6}{x+3} \geq 0$$

$$\forall -8, -3 \quad \frac{-x-8}{x+3} \geq 0$$


$[-8, -3)$

$$\frac{-(x+8)}{x+3} \geq 0$$

$$\forall -8, -3$$


2) $\frac{3}{x+4} \leq \frac{5}{x-3}$ 43-54 all PLUS EXTRA PROBLEM:

$$\frac{3}{x+4} - \frac{5}{x-3} \leq 0$$

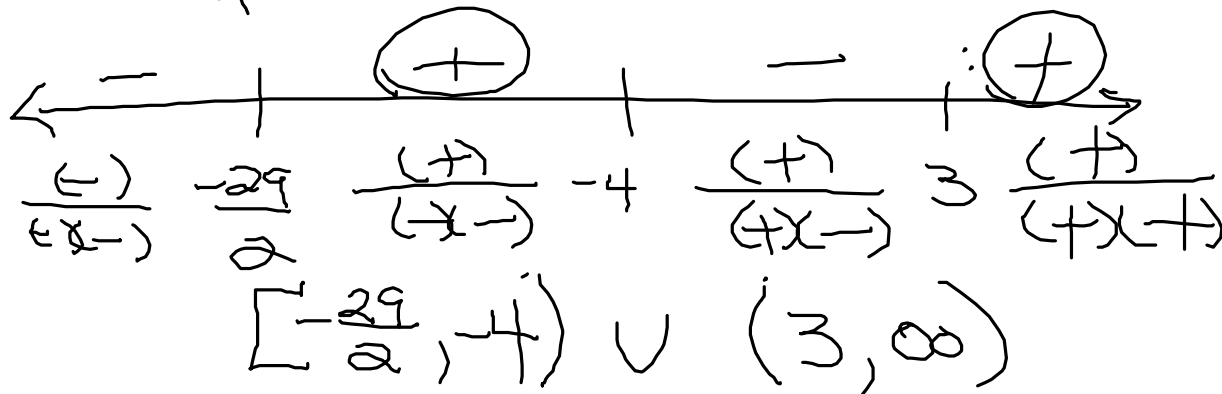
$$\frac{3x-9}{(x+4)(x-3)} + \frac{-5x-20}{(x+4)(x-3)} \leq 0$$

$$\frac{-2x-29}{(x+4)(x-3)} \leq 0$$

$$\frac{1}{r+4} \leq \frac{2}{r-2}$$

$$\frac{2x+29}{(x+4)(x-3)} \geq 0$$

$$CV \frac{-29}{2}, -4, 3$$



$$x^2 - x + 1 > 0$$

$$x = \frac{1 \pm \sqrt{1 - 4(1)(1)}}{2} = \frac{1 \pm \sqrt{-3}}{2} = \frac{1 \pm i\sqrt{3}}{2}$$

Take 0 $0^2 - 0 + 1 > 0 \checkmark$

AR -5 25 $-5 + 1 > 0 \checkmark$
 $(-\infty, \infty)$ \mathbb{R}

$$x^2 - x + 1 < 0 \quad \emptyset$$